



TITLE:

Cover

AUTHOR(S):

CITATION:

Cover. The Review of Physical Chemistry of Japan 1972, 41(1/2)

ISSUE DATE:

1972-03-31

URL:

<http://hdl.handle.net/2433/46956>

RIGHT:

K. Hara

Vol. 41, 1971

No. 1 & 2

THE REVIEW OF PHYSICAL CHEMISTRY OF JAPAN

Founded in 1926

CONTENTS

Akifumi Onodera : Kinetics of the Polymorphic Transitions of Cadmium Chalcogenides under High Pressure	1
Fujio Tanaka, Muneco Sasaki and Jiro Osugi : Effect of Pressure on the Photolysis of Azo-bis-isobutyronitrile in the Presence of Diphenylpicrylhydrazyl	18
Takashi Moriyoshi : Effects of Pressure on Organic Reactions V, The Base-Catalyzed Decomposition of Diacetone Alcohol in Two Aqueous Mixtures	22
Jiro Osugi and Ichiro Onishi : The Effect of Pressure on the Rate of the Benzidine Rearrangement V, 2-Chloro-2'-methylhydrazobenzene	32
Ichiro Onishi : The Effect of Pressure on the Rate of the Benzidine Rearrangement VI, 2-Methoxy-2'-methylhydrazobenzene	42
Ichiro Onishi : The Effect of Pressure on the Rate of the Benzidine Rearrangement VII, Substitution Effects and Related Kinetic Discussions	52
Jiro Osugi, Yoshimasa Takezaki and Tadashi Makita : Evaluation of <i>P-V-T</i> Relations, The Most Probable Values of Compressibility Factor of Methane	60

THE PHYSICO-CHEMICAL SOCIETY OF JAPAN

THE REVIEW OF PHYSICAL CHEMISTRY OF JAPAN

(Butsuri-Kagaku no Shinpo)

Found in 1926

President: Wasaburo Jono

Members of Council:

Toshio Maeda (Chief)

Jiro Osugi

Ryozo Goto

Renpei Goto

Eiji Suito

Board of Editors:

J. Osugi (Chief) *Kyoto University*

R. Goto (Associate) *Kyoto Sangyo University*

E. Suito (") *Kyoto University*

S. Shida *Tokyo Institute of Technology*

T. Kitagawa *Yokohama University*

H. Teranishi *Kyoto Technical University*

K. Suzuki *Ritsumeikan University*

K. Kuwata *University of Osaka*

S. Seki *University of Osaka*

T. Imoto *Osaka City University*

R. Fujishiro *Osaka City University*

T. Hayakawa *Prefectural University of Osaka*

Y. Kubokawa *Prefectural University of Osaka*

S. Tsuchihashi *University of Kobe*

T. Makita *University of Kobe*

S. Hasegawa *Okayama University*

K. Shimizu *Doshisha University*

H. Togawa *Doshisha University*

Secretary:

K. Hara

March 31, 1972

Communications to the Editor should be addressed to Board of Editors, The Physico-Chemical Society of Japan, Faculty of Science, Kyoto University, Kyoto, Japan.

Business Correspondences should be addressed to: Secretary, The Physico-Chemical Society of Japan, Faculty of Science, Kyoto University, Kyoto, Japan.

Purchase Order should be addressed to: Maruzen Co., Ltd., Nihonbashi, Chuo-ku, Tokyo, Japan.

Published by

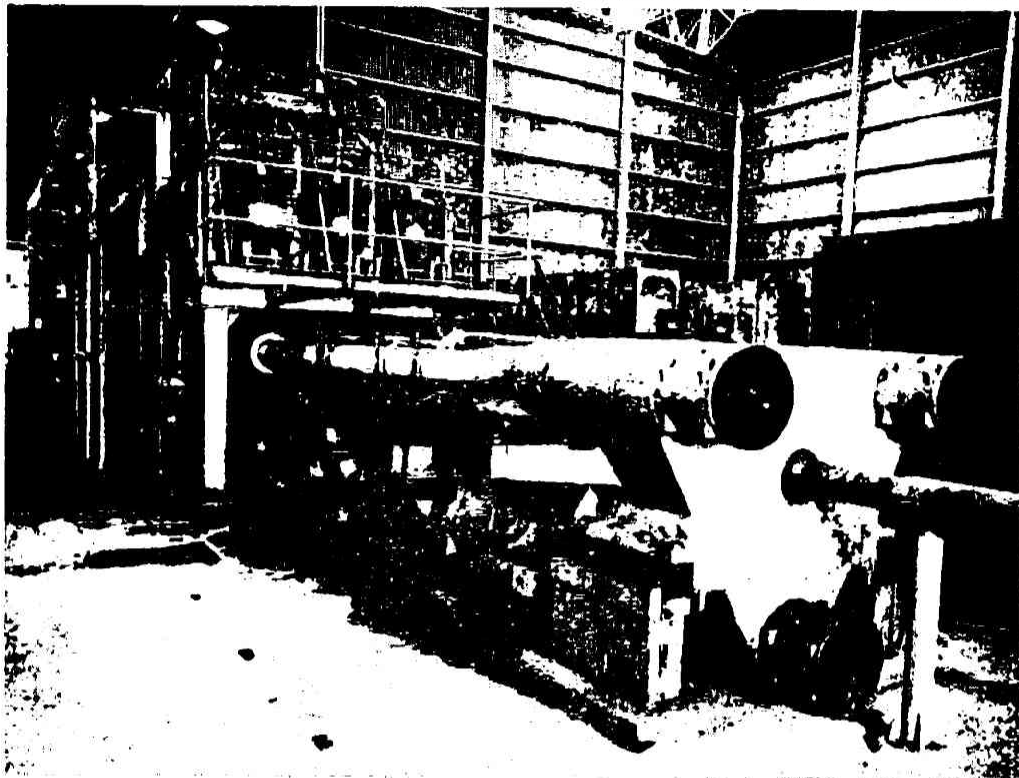
THE PHYSICO-CHEMICAL SOCIETY OF JAPAN

(Nippon Butsuri-Kagaku Kenkyu Kai)

Faculty of Science, Kyoto University, Kyoto, Japan

Printed by KAWAKITA PRINTING CO., LTD. Kyoto, Japan

KOBE STEEL'S VERY HIGH PRESSURE EQUIPMENT



500 t. hydrostatic extrusion press Max. 15,000 kg/cm²

Specifications of Kobe Steel's hydrostatic extrusion press series

Model	Press capacity (t)	Billet size (max. in mm)
KHSE-630	630	90φ × 900
KHSE-1250	1250	100φ × 1000
KHSE-2000	2000	125φ × 1250
KHSE-3150	3150	160φ × 1600
KHSE-4000	4000	180φ × 1800

Hydropressure 20,000 kg/cm²
Solid pressure 100,000 kg/cm²

- * Very high pressure generators
- * Very high pressure, high temperature reactor vessels
- * Kobe Steel's very high pressure gauges and piezometers
- * Other very high pressure apparatuses

Research and Development



KOBE STEEL, LTD. Machinery Division

Head Office: 3-18, 1-chome, Wakinohama-cho, Fukui-ku, Kobe, Japan
Phone: Kobe (078) 251-1551

Offices: Tokyo, Osaka

Branches: Sapporo, Sendai, Niigata, Toyama, Nagoya, Hiroshima,
Kita-Kyushu, Fukuoka, Takamatsu

The Review of Physical Chemistry of Japan

Vol. 41, No. 1 & 2, 1971

CONTENTS

Akifumi Onodera: Kinetics of the Polymorphic Transitions of Cadmium Chalcogenides under High Pressure	1
Fujio Tanaka, Muneco Sasaki and Jiro Osugi: Effect of Pressure on the Photolysis of Azo-bis-isobutyronitrile in the Presence of Diphenylpicrylhydrazyl	18
Takashi Moriyoshi: Effects of Pressure on Organic Reactions V, The Base-Catalyzed Decomposition of Diacetone Alcohol in Two Aqueous Mixtures	22
Jiro Osugi and Ichiro Onishi: The Effect of Pressure on the Rate of the Benzidine Rearrangement V, 2-Chloro-2'-methylhydrazobenzene	32
Ichiro Onishi: The Effect of Pressure on the Rate of the Benzidine Rearrangement VI, 2-Methoxy-2'-methylhydrazobenzene	42
Ichiro Onishi: The Effect of Pressure on the Rate of the Benzidine Rearrangement VII, Substitution Effects and Related Kinetic Discussions.....	52
Jiro Osugi, Yoshimasa Takezaki and Tadashi Makita: Evaluation of P - V - T Relations, The Most Probable Values of Compressibility Factor of Methane.....	60

Published by

THE PHYSICO-CHEMICAL SOCIETY OF JAPAN

Faculty of Science, Kyoto University, Kyoto, Japan

KANEKA'S

products and technologies shall be at your service

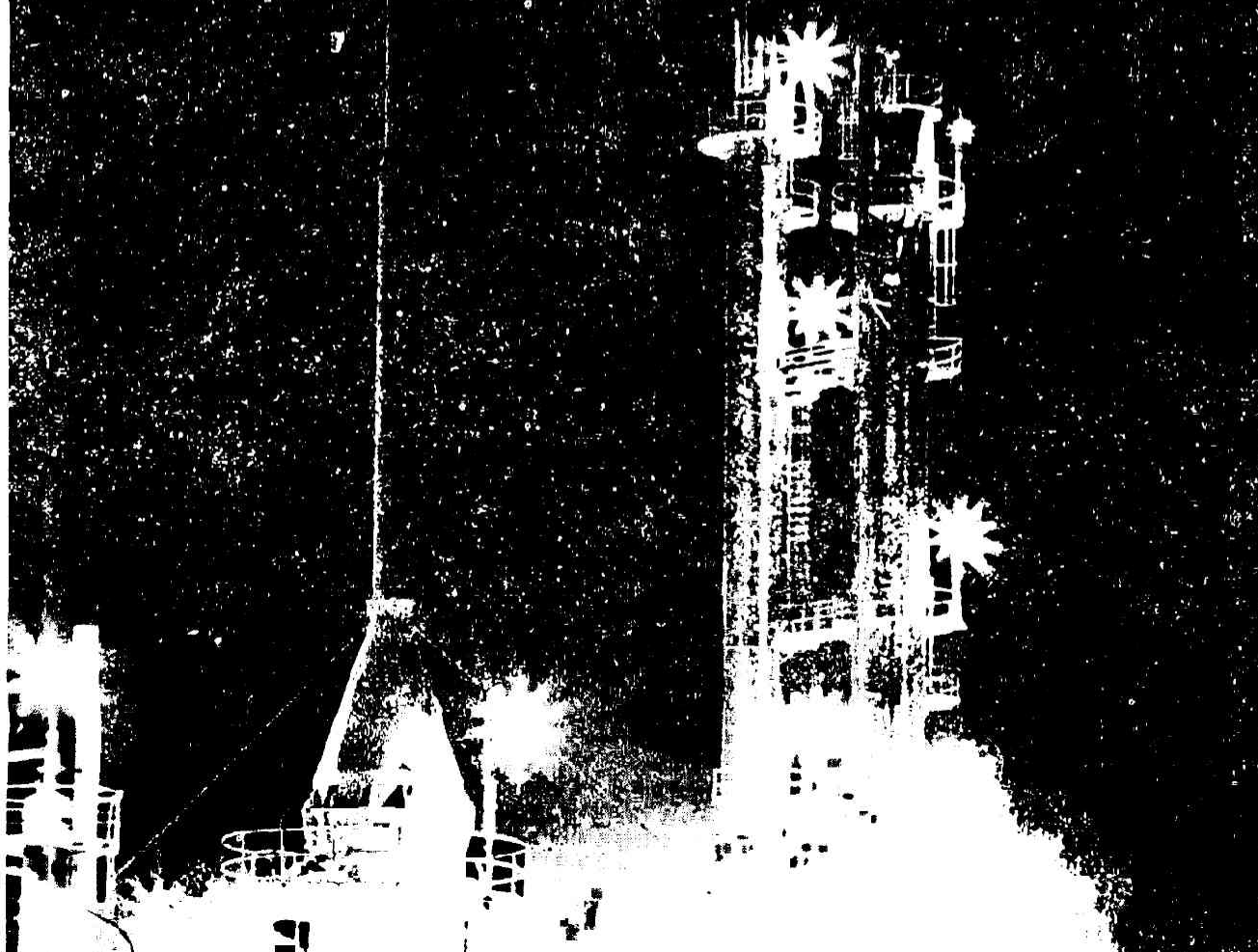
KANEKA has now firmly secured its leading position in Japan's chemical industry, and enjoys a high international reputation not only for its capability of offering unique, high-quality products in quick succession but also for its establishment of technical know-how in various field of technology. KANEKA's unique, high-quality products are as follows... "Kanekalon," a self-extinguishing modacrylic fiber and is booming for its suitability and nonflammability for carpets, curtains and wigs. "Kane-Ace B," PVC modifier, is now in brisk world-wide demand. "PVC Dispersion Resin," "Heat Resistant PVC," "Expandable Polystyrene," and so on. A variety of epochal projects are now under way at our 10 laboratories far ahead in the same field both at home and abroad.

- * KANEKA's per capita sales and profit are ranked as one of the highest among all chemical manufacturers in the world, thanks to our very high productivity.
- * KANEKA's products have, for the most part, originated in its own laboratories.
- * 55% of KANEKA's products have been developed on its hands for the first time in Japan.

KANEKA

For further details, please write to:
KANEGAFUCHI CHEMICAL IND. CO., LTD.

Head Office: (Asahi Shinbun Bldg.) 3, 3-chome, Nakanoshima, Kita-ku, Osaka, Japan
Phone: Osaka (06) 202-1121
(Ohtemachi Bldg.) 4, 1-chome, Ohtemachi, Chiyoda-ku, Tokyo, Japan
Phone: Tokyo (03) 216-1011
New York Office: PANAM Bldg., 37th Floor, 200 Park Avenue, New York, N.Y. 10017, U.S.A.
Phone: (212) 973-4885
Europe Office: 4 Dusseldorf Berliner Allee 28, West Germany
Phone: 12738



REPRO

E & B N7164B

Adsorption-Desorption Phenomena

Proceedings of the II International Symposium, Florence, April 1971

edited by F. Ricca
University of Turin, Italy

April 1972, xvi+464 pp., £6.50

This volume deals with fundamental problems in adsorption as distinct from catalysis and solid reactivity. They are structured in three subsections which are devoted to theoretical studies on physisorption, to

particle beams, and to chemisorption of gases by metals. These subsections give particular attention to some of the most recent concepts and experimental results in adsorption studies.

Residual Gases in Electron Tubes

Proceedings of the IV International Symposium, Florence, April 1971

edited by T. A. Giorgi
and P. della Porta
Milan, Italy

April 1972, xiv+400 pp., £5.75

These proceedings report four years' intensive research work into problems and phenomena connected with residual gases in electron tubes. Modern trends in electron tube manufacture are closely pursued with particular attention given to residual gas problems in colour television picture tubes, special tubes and photo-electronic devices.

The papers also cover residual gas problems in lamps; a new and rapidly increasing field of study, which for the first time has been investigated in depth. Descriptions of the latest gettering techniques designed to overcome the harmful effects of unwanted gases in both electron tubes and lamps are included.

Special Discussion of the Faraday Society

Thin Liquid Films and Boundary Layers

edited by F. C. Tomkins
*The Faraday Society
London, England*

1971, 270 pp., £5.50

This *Special Discussion* represents the first of a new series on physical chemistry topics of scientific and industrial importance and timeliness. Following the well-known pattern of the Faraday Society's General Discussions it had the advantage of preprinted papers, thus allowing for

important debates on the work submitted. The papers and a report of the ensuing discussion are contained in this volume, which forms a valuable reference work on the most recent concepts and experimental work undertaken by international authorities.

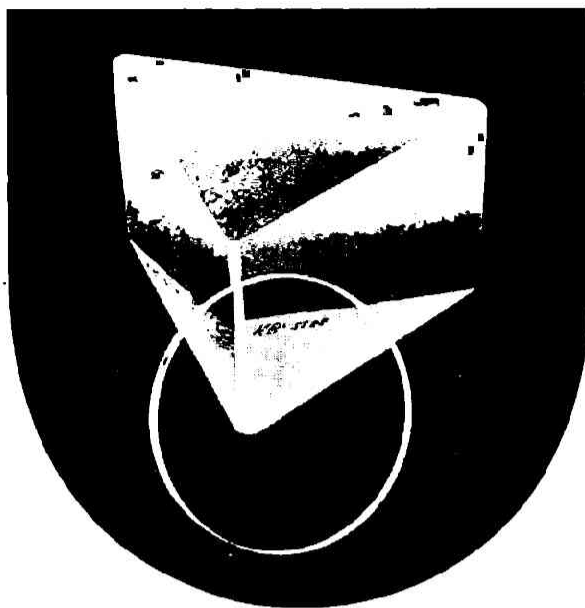
Academic Press

London and New York

24-28 Oval Road
London NW1, England



111 Fifth Avenue, New York
NY 10003, USA



Single crystals of HORIBA., offered as complete products ready to use which are free from impurity absorption, have acquired worldwide reputations.

Our scintillators, such as NaI (Tl), CsI (Tl) or CaI_2 are also credited and used internationally by the nuclear scientists, for the established qualities.

	NaCl	KCl	KBr	KI	LiF	AgCl	KRS-5*	KRS-6*	CsI
Limit of transparency (microns)	~15	~21	~27	~31	~6	~30	~40	~34	~70
Refractive index:	1.555	1.498	1.559	1.667	1.394	2.071	2.629	2.336	1.987
Solubility:**	35.7	28.5	53.5	127.5	0.27	8.9×10^{-5}	0.02	0.32	44
Specific gravity: gr/cm ³	2.16	1.59	2.75	3.13	2.64	5.56	7.2	7.19	4.53
Melting point: °C	801	776	730	680	843	455	415	424	621
Maximum diameter: mm	120	120	120	120	100	60	60	60	60
Maximum height: mm	100	100	100	70	60	100	60	100	100

* KRS-5 is a compound single crystal of TlI and TlBr, and KRS-6 is a compound single crystal of TlCl and TlBr.

** g/100 gr water at normal temperature.

HORIBA, Ltd.

Head office & Factory:

Miyanohigashi-machi,
Kissyojin, Minami-Ku, Kyoto
Tel: (075) 313-8121

Tokyo branch office:

No. 2-18, Nishihatchobori, Chuo-ku,
Tokyo Tel: (03) 552-7661